

American Vegetable Grower

OCTOBER • 1953



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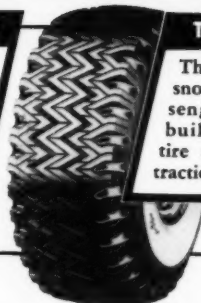
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LETTERS TO THE EDITOR

Comments on Mechanization Issue

Dear Editor:

I certainly enjoyed the September mechanization issue with all the fine articles devoted to laborsaving machines. It is amazing to read what enterprising growers are doing to cut the rising cost of labor. Benton Harbor, Mich. M. S.

Dear Editor:

... Your September issue certainly proves that mechanization in vegetable crops has really made great strides in recent years. A very good issue. Salinas, Calif. R. R.

Dear Editor:

I think that the many mechanical devices, such as were illustrated and discussed in your recent September issue, are the coming thing. They are going to be a vital necessity if we are to successfully combat the rising costs of labor, harvesting, packing, and trucking crops to market. El Paso, Tex. D. N.

Dear Editor:

You hit the nail on the head with your mechanization issue. This is certainly an eye-opener of an issue and one in which I know vegetable growers all over the country will be interested. Orlando, Fla. B. L.

Interested in Lettuce Drypacker

Dear Editor:

In your August issue you had an article entitled, "Revolution in the Salad Bowl." Please let us know if it is possible to get blue prints of the lettuce harvesting machinery as shown in the photographs. If this is not possible, could you give us the name of the manufacturer? Ritter, S. C. E. B. Sanders

The Lickens Manufacturing Company located at 1981 Bellegrave Ave., Huntington Park, Calif., is the manufacturer of the lettuce drypacker, according to F. W. Zink, Jr., of the University of California at Davis. Mr. Zink also stated that he is quite sure the machine is covered by patent rights.—Ed.

Problem of Animal Damage

Dear Editor:

The problem of wild animals eating vegetables and destroying fruit trees is a difficult one in my area. I wish you would publish the experiences of growers in overcoming the problem of wild animals.

I have found that I can keep deer from touching my garden by sprinkling it with blood and bone, which has to be renewed every two weeks or so or after a very heavy rain. The deer used to come into my garden and eat my carrot tops, cabbage, kale, etc., whenever I forgot this treatment. But just as soon as I applied it they have left the vegetables alone. I have not had any deer damage for several years.

I have some fruit trees, also, and on these I hang tin cans with holes in them and once a year I fill them (usually in the fall)

with seven moth balls and a handful of blood and bone. The moth balls seem to repel the deer, as they walk right by the place without entering. This has even been true with regards to my strawberry patch.

I have had best results by sprinkling blood and bone around and on trees in warm weather and using the cans during the winter months.

Nelson, B. C., Canada F. Ludgate

Use Potato Tops for a Mulch

Dear Editor:

I have been very interested in the articles in AMERICAN VEGETABLE GROWER each month, especially the how-to-do-it ones and articles which tell how to cut costs.

I thought perhaps your other readers would be interested to know about how we mulch our strawberries, as I know many of your vegetable subscribers also grow fruit.

Each year we carefully save our potato tops and use them for mulching strawberries. We have found they make a wonderful mulch. We put them on, quite thickly, around the strawberry plants after the first hard freeze in December. The tops are so porous that the plants can get plenty of light and air all winter and the plants will not mold or rot as they do many times under straw in wet weather. Also, if the potatoes have been kept clean, there will be no weeds to come up in spring as is liable to happen when using straw.

In spring, our plants will grow through the tops with very little help or attention. Another thing that is worth while to note is that the potato tops, being rich in potash, make a valuable fertilizer for the berries. We use both white and sweet potato tops. We raise five acres of white and 10 acres of sweet potatoes each season, and these tops all come in handy for use in our strawberry fields.

Hammonton, N. J. Elgin C. Wade

Likes Issue on Mechanization

Dear Editor:

I have read with interest the September issue of your magazine and wish to compliment you on the timeliness of your articles and the attractiveness of your format. By carrying the theme of mechanization throughout the magazine, you have added to the effectiveness of it, and the photos give fine support to the well-written material.

I was particularly interested in reading what was said on the Editorial page. The editorial entitled, "Take a Broad Look," seemed to be just made to fit certain areas in our state.

As secretary of our organization it has been my responsibility to send to our members and other interested people a news sheet at intervals to keep our members informed of developments in our common field of interests.

I would like to have your permission to reprint the above editorial in our publication, "Stalk Talks," if I may. Credit would, of course, be given to AMERICAN VEGETABLE GROWER.

Mich. Celery Promotion Assoc., Inc. Beulah, Mich. Howard Trapp

American

VEGETABLE GROWER

(Commercial Vegetable Grower)

Vol. 1 OCTOBER, 1953 No. 10

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E. G. K. MEISTER
Publisher

Editorial Staff
R. T. MEISTER
E. K. GOULD
R. L. CAROLUS
ELDON S. BANTA
M. A. FRAZIER
M. P. RASMUSSEN
H. B. TUKEY

Advertising Manager
EDWARD L. MEISTER

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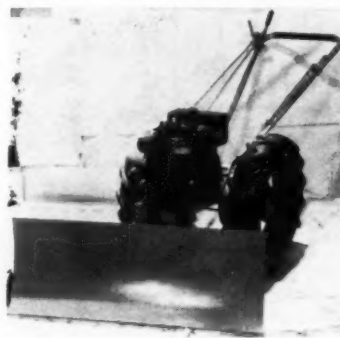
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What's Happening to the Potato?

**Marked changes in the
potato picture point the
way to the road ahead**

FALLING potato prices, which even conservative USDA forecasters say will average far below prices received in 1952, are causing a lot of concern. However, this is not the first time that low prices have caused a headache.

The potato situation has changed considerably in the last 20 years. According to USDA figures, total potato acreage in 1951 was one-half of that in 1945 and only one-third of the acreage we had in 1934. On the other hand, yields per acre have more than doubled since 1932 increasing from 111 bushels to 240 bushels per acre. Yield increases have more than offset acreage decreases so we still have as many potatoes to consume.

Per capita consumption of potatoes has declined since 1910 but since we have had great population increases the total national consumption figure has stayed at about the same level.

Specialized Farms

These changes have balanced each other but there has been one important change not often taken into account that augurs well for the industry. There have been significant changes in areas of production so that more and more potatoes are being grown on larger farms and in more favorable circumstances. These more specialized growers are able to produce high yields and thus grow potatoes at lower cost.

During the last two decades the acreage of potatoes was reduced in 41 of the 48 states and production was reduced in 29 states. Most of the states showing decreases in both acreage and production were in the north central, eastern, and southern sections of the country. Large increases in acreage as well as in production occurred in California and Idaho. Other important areas showing expansion

AMERICAN VEGETABLE GROWER

in production are in the Red River Valley of Minnesota and North Dakota, and in Colorado, Washington, and Oregon.

The concentration of potato production in specialized areas is indicated by the fact that five states—Maine, California, Idaho, New York, and Pennsylvania—accounted for more than half of the entire national production of potatoes in 1948-52. Even more significant in showing the concentration of potato production is the fact that the 10 leading counties in potato acreage in 1949 had 26 per cent of the national acreage and accounted for 36 per cent of the production that year.

Evidence that commercial potato production is a large-scale operation is provided by the U.S. Census which shows that 83 per cent of the entire 1949 crop was produced by two per cent of the growers (30,789 farmers), each of whom grew 10 acres or more.

Only eight per cent of the growers grew one to 10 acres each; they produced 11 per cent of the national crop. About 90 per cent of the growers grew less than an acre each, and most of their production, which was only six per cent of the total, undoubtedly was for home use.

With the potato acreage becoming more stabilized in the hands of specialized producers, the long-range outlook is more favorable than the situation today would indicate. The better qualified producer will put a more standardized, higher quality pack on the market which in itself will help to raise consumption.

Mineral and Vitamin Content

Also, through better organization it may become possible for potato growers to publicize the fact that the vitamin and mineral contents of potatoes are higher than is generally recognized and that contrary to popular opinion potatoes are not particularly fattening. In addition, the volume of potatoes used as potato chips and as french fries, has been expanding and this trend may continue.

However, as USDA economist Edwin G. Strand points out, market supplies of potatoes are likely to be relatively plentiful for some time to come. The answer for the grower is to strive to raise yields and lower per unit costs.

THE END

OCTOBER, 1953



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The VEGETABLE Situation

SUMMER production of vegetables and melons for fresh market is now estimated to be seven per cent above last year and three per cent above the 1949-51 average, reports the USDA. This increase over that estimated August 1 is attributed to a marked improvement in late summer onion crop prospects which more than offset reductions in other summer vegetables in the north central and Atlantic Coast states caused by hot, dry weather. Production of fall vegetables is expected to be slightly smaller than in 1952 and somewhat below the average.

POTATOES

Total production of potatoes is now estimated at 380,926,000 bushels compared with 347,504,000 bushels in 1952 and the 1942-51 average of 411,007,000 bushels. Improved prospects in a few states, principally the western, are more than offset by declines elsewhere, chiefly in Pennsylvania, Washington, and central states.

Hot, dry weather in the nine central states during August hampered development of the crop, especially in North Dakota and Minnesota where the outlook in the Red River Valley points to a smaller crop than expected.

ONIONS

Indicated 1953 production of late summer onions is now set at 35,501,000 fifty-pound sacks, a six per cent increase above the August 1 estimate and 20 per cent more than the 1952 production. If this indicated production is realized it will be only seven per cent less than the record production set in 1946.

Most of the increase was in New York where in central and western portions rains early in August were followed by cool weather which kept the tops green and as a result seed onions sized better than expected.

SNAP BEANS

Production of late summer snap beans has not held up to indications of a month ago because of hot, dry weather. Present estimate of 3,355,000 bushels is 10 per cent below the August 1 forecast, two per cent below 1952's crop, and 14 per cent below the 1949-51 average.

Hot, dry weather and droughts caused considerable trouble in southern states and terminated harvest earlier than usual. In New York, because of insufficient rain, much of the acreage was abandoned. However, in New Hampshire and Massachusetts indications are for a good crop.

CABBAGE

Adverse weather conditions have caused a decline of late summer cabbage in most areas. Crop is now expected to be 186,500 tons, two per cent below 1952 and 11 per cent below the 1949-51 average. Rapid maturity resulted in small sizes, reducing yields in most localities.

Initial forecast for production of early fall cabbage indicates a crop of 550,000 tons for fresh market and processing which would be 10 per cent above that of 1952 but two per cent below the 1949-51 average.

MELONS

Late summer cantaloup production prospects improved in Kansas, Colorado, and Oregon during August; and the crop is now forecast at 1,205,000 crates, seven per cent below the 1952 crop but three per cent above the 1949-51 average. Harvesting is expected to be terminated earlier than last year in most sections.

CELERY

Production in four late summer states is estimated at 978,000 crates, seven per cent below last summer's late crop and 21 per cent below the 1949-51 average. Harvest is good in Washington and Colorado, but part of the Utah crop has bolted badly and yields have been reduced.

TOMATOES

Indications for the 16 late summer states point to 9,174,000 bushels, one per cent below last summer's late crop and five per cent below the 1949-51 average. Hot, dry weather affected the crop adversely in Ohio, New Jersey, Pennsylvania, and Michigan. Other producing states, however, continued to have fair to good prospects.

VEGETABLES FOR PROCESSING

Indications for processing tomatoes are about 20 per cent less than last year and five per cent less than average. Yield prospects for sweet corn are about one per cent less than last year. On the other hand, prospective 1953 production of lima beans, snap beans, beets for canning, kraut cabbage, green peas, and pimientos exceeds the 1952 production. Lima bean tonnage is expected to be record high, 11 per cent more than last year and nearly one and three-fourths times as large as the 1942-51 average.

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Left—An example of boron injury in a celery plant. Center—A normal celery plant. Right—Boron deficiency, which is also known as "cracked stem," in celery.



A cauliflower plant affected with "whiptail," a sign of molybdenum deficiency.

Watch Your TRACE ELEMENTS

Vegetable crops are especially sensitive to trace element deficiencies. Here is latest information on how your crops may be affected

By E. R. PURVIS

BECAUSE of the intensive cultural practices involved in their production, vegetable crops are especially susceptible to trace element deficiencies. Some vegetable crops have abnormally high requirements for certain trace nutrients but appear to have difficulty in obtaining necessary amounts of those nutrients from soils containing sufficient quantities for most crops.

The more important vegetable crops listed in the table on page 16 are rated according to the frequency of occurrence of deficiencies of the various trace nutrients. Most of the crops are subject to deficiencies of boron, copper, and manganese under some conditions while known instances of deficiencies of molybdenum and zinc are restricted to five vegetable crops at present.

The author, DR. E. R. PURVIS, is in the Soils Department of Rutgers University, New Brunswick, N. J.

An insufficient supply of available boron in the soil is the most frequent trace element deficiency met with in truck crop production. It occurs on both mineral and organic soils. Although overliming is known to induce boron deficiency in many instances, acid soils are also frequently affected by a deficiency of this nutrient.

The symptoms of boron deficiency vary considerably. "Heart rot," or "brown heart," in root crops such as beets, turnips, and radishes, develops from water-soaked areas within the root. These areas later darken in color and the tissues involved may dry out or disintegrate. "Cracked stem" of celery first develops as a mottling along the margins of bud leaves. The stem becomes brittle and brown stripes appear in the epidermis along the midribs. In the final stages cross-wise cracks appear on the surface of the stalk and the tissue curls outward.

Boron deficiency in broccoli, cabbage, and cauliflower results in the formation of hollow areas within the stem near its junction with the head. Brown spots will often appear on the heads of cauliflower. In crops such as lettuce and sweet potato the first symptom of boron deficiency is the appearance of malformed leaves in the bud or near the vine tips.

Boron deficiency in vegetable crops is readily corrected by applying borax, or boric acid, at the rate of from five to 40 pounds to the acre, depending upon crop and soil type. Because of the wide variation in crop susceptibility to injury from too much boron, both borax and boric acid should be applied with caution. It is best to consult competent agricultural specialists to determine local crop and soil requirements before applying either material. Both may be applied mixed with fertilizer or as a spray.

Although there have been some reports of manganese deficiency on light sandy soils having an acid reaction, deficiencies of this nutrient normally occur on soils that are naturally alkaline or have been overlimed. The availability of soil manganese

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Why Not Try ROADSIDE SELLING?

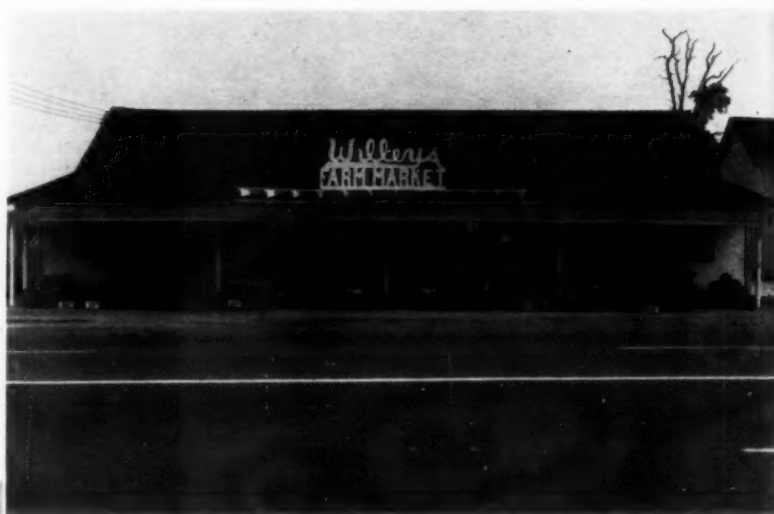
Harry Willey of New Jersey has been doing it successfully for 20 years. His experiences will help you make a profit

By ELDON S. BANTA

ROADSIDE selling can be a dramatic and highly profitable adventure. It can be quite the opposite, too, so perhaps we can present some ideas which will help you make this method of selling a pleasure and one which will return a good interest rate on your investment.

What are you going to sell? Most vegetables and fruits are well adapted to roadside selling, and some do better in certain areas than others. So you have to know what people in your buying population want. If they buy tomatoes in quantity for canning, then this may be a good bet for you.

Whatever you are growing and expect to sell, one fact remains constant.



Displays at Willey's Farm Market are easily seen from highway and yet are protected from sun. Office is at right; room at left contains a small cider press.



Willey's main market building is on left side of road and new addition on right. Latter gets southbound traffic while main building attracts motorists returning to New York.

You must offer quality products! Grow, harvest, and display your vegetables to the best of your ability and selling will take care of itself. This does not mean that you cannot sell off-grade produce at your market—just keep this type of produce at a minimum, however, and price it accordingly.

Harry A. Willey, Keyport, N.J., vegetable and fruit grower, has done an excellent job of building a road-

side marketing program for the produce he grows. In fact, he and Mrs. Willey and now their son, Kenneth, have all worked in this selling program.

The Willeys concentrate on quality. Their displays are chuck full of fresh, properly ripened produce that has been handled carefully from field to market. Even the curious traveler who stops just to see is so attracted to the neat displays of quality produce

that he feels compelled to make a purchase.

There are many things to consider in roadside selling. Where shall I locate the market? The most successful ones, like the Willeys, are situated on well-traveled highways and fairly close to a town or city.

The Willeys market was started some 20 years ago on the same spot it stands today, the north side of highway 35. This is one of the main highways linking New York and North Jersey to Atlantic City and has recently been built into a four-lane thoroughfare. The market is only about 30 minutes out of New York City, and people returning to New York find Willey's Farm Market a convenient stopping place.

Last year the Willeys decided to expand their market by opening one just across the highway from their main establishment. This catches traffic going southward and last year it

AMERICAN VEGETABLE GROWER

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Shelves are kept full of attractive vegetables and fruits at Willey Farm Market.

returned a sizable volume of business, although not nearly the amount as the main market. Most surveys of roadside selling reveal the fact that the heaviest volume of business is done by markets situated on the right side of the highway approaching the nearest town or city. This undoubtedly is because most of the people are on their way home and will stop to make purchases for home consumption.

It isn't always necessary, of course, to situate the market on a superhigh-



Harry A. Willey likes to joke with his helpers and keep them in a good humor.



Kenneth S. Willey brings some freshly pulled Golden Cross sweet corn into market. At the market it will be sorted and then put on the front display shelf, ready for sale.

way. Many out-of-the-way markets do a good business and this is usually because the operator has taken advantage of some unique situation or has been an exceptionally good "seller."

The Willeys believe in having a wide variety of vegetables and fruits

on their display shelves, and lots of color. They even dress up the shelves with bouquets of flowers. Mrs. Willey, who works in the market most every day, is a stickler for full and neatly arranged display shelves. As soon as a basket of tomatoes or some other vegetable is sold, another must be

rushed to take its place. And this helps materially to maintain a good reputation among their buying clientele.

That's a lot of work. So it is. In a survey recently conducted by Purdue University on roadside selling in Indiana, it was found that labor accounts for 70 per cent of the cost of operating a market. The Willeys have six or eight clerks helping them with sales during their peak hours.

The peak selling days are Friday, Saturday, and Sunday. Evening hours from about 4:00 to 7:00 P.M. are the busiest and it is not unusual to see 15 or 20 cars stopped at a time. On many days from 50 to 75 per cent of

the day's business will be contracted during these hours. An average day in the busy summer months will bring in \$400 and a good weekend day's sales will just about double this.

Harry Willey believes one of the first building blocks in successful roadside selling is the selection of the best variety of each type of fruit or vegetable grown. He illustrates this point by telling of the effect on tomato sales when he started growing the new Queens variety of tomato. Sales volume picked up immediately and customers were quick to ask for more of those firm, red tomatoes spiced with a very pleasing flavor.

For an early tomato it topped all others he had grown, even in yield. This year the Willeys put their entire 12 acres of tomatoes to this one variety. Successive plantings insure tomatoes for market from July until October frosts kill the vines.

Sometimes it may be more important, and profitable, to grow a variety that isn't high yielding in pounds per

(Continued on page 19)

The Trend in VEGETABLE CONSUMPTION

By **HERBERT W. MUMFORD, Jr.**
U.S. Department of Agriculture

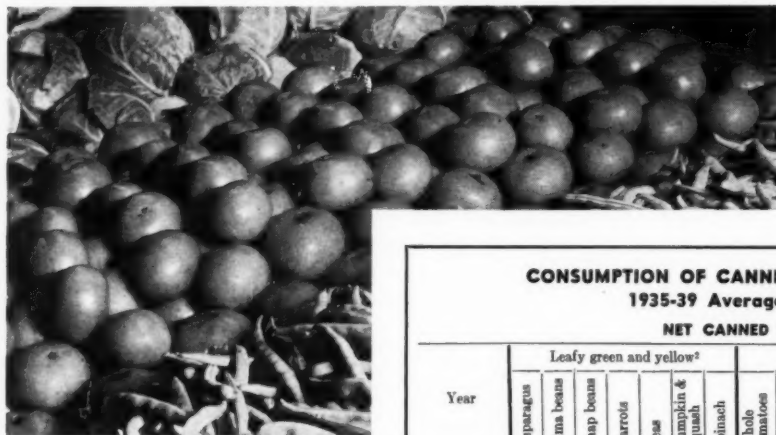
A NUMBER of significant changes have occurred in the production and consumption of commercially grown vegetables in the last decade and a half. This article is limited to conclusions based on estimates recently published by the Bureau of Agricultural Economics, USDA, of total production of all vegetables for sale and omits consideration of vegetables grown for home use, whether

group were cabbage (18.0 pounds), lettuce and escarole (12.2 pounds), and carrots (6.7 pounds).

Since that time per capita consumption of commercial fresh vegetables has increased considerably for lettuce (and escarole) and carrots, and slightly for fresh tomatoes. On the other hand, consumption has declined

considerably for cabbage and fresh green peas and decreased moderately for melons. Consumption of many items rose rapidly during World War II, under the stimulus of high wages and maximum employment, but has since eased off to somewhere above prewar levels.

Civilian consumption of total commercial fresh vegetables and melons in 1952 (preliminary) is estimated at 142 pounds per person, composed of 58.7 pounds leafy, green, and yellow vegetables, 13.5 pounds of tomatoes, and 23.3 pounds of melons. Within the leafy, green, and yellow group, consumption of fresh cabbage had shrunk to 13.5 pounds per person and fresh green peas to 0.5 pound,



on farms or elsewhere and for which no official crop reports are available.

During the 1935-39 period the consumption of commercially grown fresh vegetables and melons by United States civilians averaged 138.8 pounds per person on a farm-weight basis. This figure does not include potatoes and sweetpotatoes which are classified statistically as field crops rather than as vegetable truck crops.

The average consumption of 138.8 pounds per person was made up of about 58.5 pounds of leafy, green, and yellow vegetables (such as cabbage, lettuce, and carrots), about 13.3 pounds of tomatoes, 25.6 pounds of melons, and about 41.4 pounds of a large variety of vegetables not classified in the foregoing groups. Major items in the leafy, green, and yellow

The competitive situation between vegetables and how they are marketed is constantly shifting. Here are the latest figures on which to base decisions

CONSUMPTION OF CANNED VEGETABLES PER PERSON¹
1935-39 Average; Annually 1939-52

NET CANNED WEIGHT, POUNDS

Year	Leafy green and yellow ²							Tomato products					Other vegetables					Sweet- potatoes	Other ⁴	Total
	Asparagus	Lima beans	Snap beans	Carrots	Peas	Pumpkin & Squash	Spinach	Whole tomatoes	Catsup & chili sauce	Paste & sauce	Pulp & puree	Tomato juice ³	Beets	Corn	Pickles	Sauerkraut				
1935-39 Aver.	.5	.3	1.7	.2	4.5	.4	.9	5.7	1.7	.6	.7	2.5	.6	3.9	2.0	1.8	.1	.7	28.8	
1939	.6	.4	2.1	.2	4.9	.5	.9	5.7	2.1	.7	.6	2.6	.7	4.2	2.2	2.0	.1	.9	31.4	
1940	.6	.5	2.3	.3	5.4	.7	1.1	5.8	2.5	.8	.7	2.9	.8	4.4	2.1	2.0	.2	.8	33.9	
1941	.6	.6	2.3	.3	6.1	.7	.9	5.9	2.5	.9	.6	3.6	.9	4.7	2.5	2.2	.3	.7	36.3	
1942	.7	.6	2.6	.3	6.3	.5	1.2	6.1	2.4	1.1	.7	4.4	1.2	5.5	2.8	2.1	.2	.5	39.2	
1943	.6	.4	2.6	.2	5.8	.6	.8	5.5	1.7	1.5	1.2	4.1	1.1	5.3	2.5	1.8	.3	.5	36.5	
1944	.6	.2	2.9	.3	5.2	.5	1.3	4.8	2.0	1.9	1.4	2.9	1.0	5.0	2.2	.6	.3	.8	33.9	
1945	.4	.3	3.3	.4	7.1	.4	1.0	4.1	2.4	2.7	2.1	6.9	1.4	5.5	2.3	1.0	.3	1.0	42.6	
1946	1.0	.3	3.2	.6	7.5	.6	1.6	4.0	2.8	3.0	2.1	5.1	1.4	6.2	2.9	2.3	.6	.9	46.1	
1947	.6	.3	2.7	.4	5.8	.6	1.1	3.8	2.7	2.7	1.5	3.8	1.2	5.8	3.2	2.4	.5	.8	39.9	
1948	.7	.4	2.8	.4	5.7	.5	1.0	4.4	2.2	2.3	.5	4.2	1.2	4.9	3.3	1.1	.3	1.4	37.3	
1949	.6	.4	2.9	.3	5.3	.5	1.1	4.6	2.5	2.2	.6	4.4	1.0	4.8	3.3	1.9	.5	1.3	38.2	
1950	.7	.6	3.4	.4	5.4	.6	.9	5.0	2.7	2.4	.7	4.9	1.6	5.1	3.3	1.8	.7	1.3	41.5	
1951	.7	.5	3.2	.3	5.3	.6	1.2	4.8	2.5	3.3	.8	4.6	1.5	4.8	3.1	2.3	.4	1.3	41.2	
1952 ⁶	.7	.5	3.4	.4	5.1	.7	1.0	4.1	2.7	2.7	.9	5.1	1.4	4.8	3.8	1.9	.8	1.3	41.3	

¹Excludes soups and baby foods. Civilian consumption per person beginning 1941.

²Minor vegetables and items not shown separately are included in "Other."

³Based on information available from 1944-46; tomato juice comprises approximately 85 per cent of the total, combination vegetable juices 13 per cent, and other vegetable juices, 2 per cent.

⁴Computed as a residual.

⁵Preliminary

PER CAPITA CONSUMPTION OF COMMERCIAL FRESH VEGETABLES¹
1935-39 Average, Annually 1939-'52

FARM WEIGHT BASIS

ALL QUANTITIES IN POUNDS PER PERSON

	Leafy, green and yellow vegetables																Other fresh vegetables										Melons			Total vegetables and melons
	Tomatoes	Artichokes	Asparagus	Lima beans (in shell)	Snap beans	Broccoli	Brussels sprouts	Cabbage	Carrots	Kale	Lettuce & escarole	Green peas in the pod	Peppers	Spinach	Minor	Total	Beets	Cauliflower	Celery	Corn	Cucumbers	Eggplant	Garlic	Onions & shallots	Minor	Total	Water-melons	Cantaloups	Total	
1935-39 Aver.	13.3	.3	1.2	.7	4.5	.6	.2	18.0	6.7	.2	12.2	2.3	1.8	2.6	7.1	58.5	1.6	2.9	7.5	5.3	2.3	.4	.2	11.8	9.4	41.3	17.4	8.1	25.5	138.8
1939	13.9	.3	1.3	.9	4.9	.8	.2	16.2	7.5	.3	13.2	2.3	2.0	2.9	7.4	60.2	1.7	3.2	8.2	5.0	2.4	.4	.2	12.4	9.6	43.1	15.6	8.0	23.6	140.8
1940	13.1	.2	1.5	.8	5.0	.6	.2	18.3	7.8	.1	12.9	2.1	1.9	2.7	7.4	61.5	1.7	3.5	8.1	5.6	2.2	.4	.1	11.5	9.7	42.8	17.2	7.5	24.7	142.1
1941	12.9	.2	1.5	.8	4.5	.7	.2	16.0	7.7	.3	13.5	2.0	1.8	2.6	7.2	59.0	1.6	2.6	8.7	6.2	2.3	.5	.2	10.9	9.5	42.5	14.8	7.7	22.5	136.8
1942	14.1	.2	1.3	.7	4.9	.6	.2	18.6	7.7	.2	13.3	1.7	1.8	2.5	7.8	61.5	1.4	2.7	7.8	6.7	2.1	.4	.2	12.4	10.3	44.0	13.1	6.2	19.3	138.9
1943	14.4	.2	1.2	.6	5.5	.7	.2	16.8	10.2	.3	14.0	1.6	1.4	2.3	7.3	62.3	1.3	2.5	6.9	6.2	1.7	.4	.1	10.8	9.5	39.4	12.5	6.1	18.6	134.7
1944	14.8	.2	1.2	.6	5.0	1.0	.2	19.5	9.3	.3	15.7	1.7	1.8	2.3	8.8	67.6	1.2	3.1	7.3	6.6	1.8	.5	.2	12.5	11.5	44.7	17.1	7.6	24.7	151.8
1945	17.0	.2	1.1	.6	5.2	.9	.2	20.3	11.4	.3	16.5	1.5	2.1	2.3	9.5	72.1	1.1	3.4	8.1	7.8	2.4	.5	.2	13.4	12.5	49.4	17.8	8.0	25.8	164.3
1946	16.4	.2	1.1	.7	5.2	1.0	.2	17.5	9.7	.3	17.9	1.4	2.2	2.1	9.6	69.1	1.5	3.6	9.0	7.6	2.9	.6	.2	13.3	12.6	51.3	17.9	9.0	26.9	163.7
1947	14.7	.2	1.1	.6	4.5	.9	.3	16.8	8.8	.3	18.0	1.1	1.9	1.9	8.6	65.0	1.3	3.2	7.8	7.6	2.5	.4	.2	12.4	11.2	46.6	16.7	7.8	24.5	150.8
1948	14.9	.2	.9	.6	4.7	.9	.2	16.4	9.4	.2	17.4	.9	2.1	1.7	9.1	64.7	1.3	3.3	8.4	8.6	2.7	.4	.2	11.7	12.1	48.7	16.0	7.7	23.7	152.0
1949	14.0	.2	.9	.5	4.6	.9	.1	15.6	8.7	.3	16.3	.8	2.2	1.6	8.7	61.4	1.2	3.1	8.1	7.5	2.7	.4	.2	11.9	11.4	46.5	16.8	7.6	24.4	146.3
1950	13.4	.2	.9	.5	4.4	1.0	.1	14.4	9.0	.3	17.2	.7	2.2	1.5	9.2	61.6	1.2	2.9	8.3	8.0	2.7	.4	.2	12.1	12.1	47.9	15.0	7.8	22.8	145.7
1951	13.8	.2	.8	.4	4.4	.7	.1	13.7	8.4	.3	17.1	.5	2.2	1.3	8.6	58.7	.8	2.7	8.7	7.8	2.8	.4	.2	12.0	11.2	46.6	16.5	7.5	24.0	143.1
1952 ²	13.5	.2	.9	.4	3.9	.7	.1	13.5	8.4	.3	18.3	.5	2.1	1.0	8.4	58.7	.9	2.3	8.7	8.1	3.0	.5	.2	11.7	11.1	46.5	16.0	7.3	23.3	142.0

¹Omits quantities grown for home use; civilian consumption only, beginning 1941.
²Preliminary.
 Source: Bureau of Agricultural Economics, U.S.D.A.

while that of lettuce (and escarole) increased to 18.3 and carrots to 8.4 pounds.

The high wartime consumption of commercial fresh vegetables—164 pounds per person in 1945—indicates that the 1952 level of 142 pounds is by no means a ceiling for commercial growers. Continued production of top-quality vegetables coupled with

further advertising of the vitamin values and appetite appeal of fresh vegetables might rebuild some of the recently lost ground.

While these shifts in consumption of commercially grown fresh market vegetables has been taking place, there has also occurred the widely recognized rapid rise in consumption of commercially frozen vegetables. From

CONSUMPTION PER PERSON OF POTATOES AND SWEETPOTATOES
1935-39 Average, and Annually 1939-'52¹

Year	Potatoes (lbs.)	Sweetpotatoes (lbs.)
1935-39 Aver.	128	21.3
1939	121	19.4
1940	121	16.1
1941	126	18.1
1942	125	20.2
1943	124	21.2
1944	135	19.5
1945	120	18.0
1946	122	17.0
1947	124	14.3
1948	104	11.2
1949	109	11.5
1950	101	12.3
1951	108	7.2
1952 ²	101	6.8

(Disappearance into primary wholesale channels; farm weight basis)
¹Civilian only, beginning 1941.
²Preliminary.

a level of less than one-half pound per person in 1937-39 (complete pack data not available before 1937), consumption has soared to more than 5 pounds per person in 1952. Since this is on a processed or frozen weight basis, it represents about twice as much on a farm weight basis.

Leading frozen vegetable items, in declining order of consumption in 1952, are frozen peas (1.14 pounds

(Continued on page 21)

CONSUMPTION OF FROZEN VEGETABLES, 1937-52¹
POUNDS PER PERSON

Year	Leafy, green and yellow										Other vegetables					Total ²
	Asparagus	Snap beans	Lima beans	Carrots	Peas	Peas and carrots	Pumpkin and squash	Broccoli	Brussels sprouts	Spinach	Other ³	Cauliflower	Corn, cut and on cob	Sweetpotash	Rhubarb	
1937-39 Aver.	.04	.05	.10	.4	.17	.4	.4	.02	.4	.02	.4	.04	.5	.5	.5	.44
1939	.03	.04	.11	.4	.22	.01	.4	.02	.4	.01	.4	.05	.5	.5	.5	.50
1940	.05	.04	.13	.4	.21	.4	.01	.01	.01	.04	.01	.06	.5	.5	.5	.58
1941	.05	.07	.11	.01	.31	.4	.01	.03	.01	.01	.4	.05	.5	.5	.5	.67
1942	.04	.10	.24	.01	.40	.01	.02	.03	.02	.13	.01	.01	.07	.5	.5	1.09
1943	.06	.05	.14	.4	.26	.01	.03	.03	.02	.11	.4	.4	.03	.5	.5	.74
1944	.10	.15	.17	.03	.56	.02	.07	.03	.05	.17	.06	.04	.12	.4	.04	1.61
1945	.14	.19	.17	.02	.62	.02	.08	.08	.05	.26	.04	.04	.12	.01	.04	1.88
1946	.12	.20	.27	.04	.59	.04	.03	.12	.07	.20	.06	.07	.15	.01	.05	2.02
1947	.12	.26	.37	.05	.81	.04	.06	.11	.04	.22	.08	.04	.27	.02	.06	2.55
1948	.15	.30	.39	.03	.95	.04	.05	.17	.08	.31	.08	.09	.27	.03	.01	2.95
1949	.12	.28	.49	.10	.74	.04	.03	.21	.12	.28	.15	.10	.27	.05	.02	3.00
1950	.12	.35	.50	.07	.85	.05	.06	.21	.09	.37	.21	.09	.25	.05	.02	3.29
1951	.13	.44	.54	.08	1.00	.07	.06	.30	.13	.49	.30	.13	.34	.05	.04	4.10
1952 ²	.15	.52	.70	.10	1.14	.10	.06	.43	.14	.49	.52	.17	.42	.09	.04	5.07

¹Civilian consumption beginning 1941.
²Mostly greens.
³Computed from unrounded data.
⁴Less than .005 pounds.
⁵Included with "Other."
⁶Preliminary.



Tomatoes flourish alongside as well as inside Spence Farms' 30x100-foot greenhouse. It takes only a few minutes to spray whitening over the entire greenhouse.

Round-the-Calendar Efficiency with A GREENHOUSE

There are many uses for a greenhouse, say the Spence brothers, who make theirs pay dividends during all seasons of the year

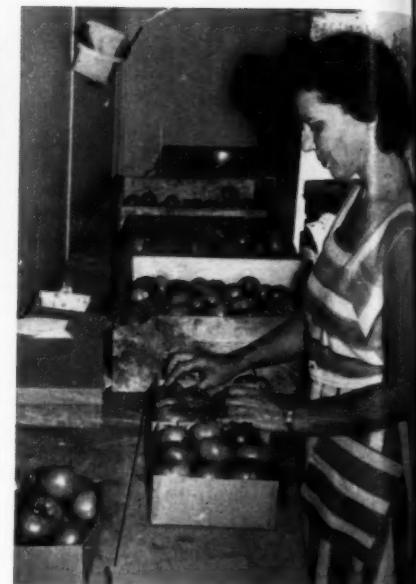
By CHARLES L. STRATTON

THERE probably are as many types of vegetable production as there are states. But there is only one way to produce vegetables and that is efficiently.

Richard and Albert Spence and their dad, William, operate the Spence Farms in Woburn, Middlesex County, Massachusetts, around the calendar. Take their greenhouse, for example. Some growers use a greenhouse only for starting plants in the spring; others only for hothouse tomatoes. The Spence Farms put theirs to use several different ways throughout the year and their method helps them make extra dollars in the spring.

In the fall when they bring in some 100 tons of Blue Hubbard squash is the best time to look into their greenhouse cycle. In fact, they grow so much Blue Hubbard it takes them about 10 days to get it out of the fields. Their two squash houses have nowhere near the storage capacity for this huge amount of squash, so the surplus is stored in the 30 x 100-foot greenhouse under a controlled temperature of about 50°.

When the Blue Hubbards stored in the greenhouse are sold—generally around Christmas time—the Spence brothers clean out the greenhouse and bring in the new loam they piled up outside in the fall and kept covered with hay. (Squash sales from the two squash houses last until March 1.) The loam is spread evenly and covered



Fresh vegetables are always available at the Spence roadside stand—field-grown or hothouse. Mrs. Ruth Courage, the Spence brothers' sister, is shown packing hothouse tomatoes in the roadside stand as she awaits the next customer.

with manure. A Rototiller is used to work the loam and manure into a fluffy mixture that allows thorough penetration of the gasing that follows.

About a month after this annual gasing of the greenhouse, 1,500 geraniums are started for later sale at the Spence roadside stand. They are started in two and one-quarter-inch pots and later are transplanted to three and one-half-inch pots and are moved to the heated hotbeds to make room for other plants. The Spence brothers say geraniums make excellent Memorial Day sales and do not hinder their regular work.

The Spence brothers have installed overhead pipe racks to double the floor space in their greenhouse. These

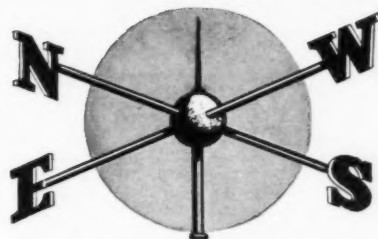
(Continued on page 20)



Spence brothers and one of their neat roadside signs. Green produce in background.

AMERICAN VEGETABLE GROWER

STATE



NEWS

- Mechanical Harvester Indicates New Future for Wisconsin Snap Beans
- Virginia's Eastern Shore to Have Experiment Station

WISCONSIN—Potato and vegetable growers are now busy with fall harvest. Potato and onion yields are exceptionally good, taking into account the adverse weather of a month ago. Frosts in the north and central parts of the state have taken tender crops and also have prompted immediate harvesting of potatoes, cabbage, cauliflower, carrots, beets, and celery.

The development of a mechanical snap bean harvester indicates a new future for this crop in Wisconsin canning crop areas. Recently demonstrated in the Green Bay area, this machine stripped bushes clean of pods as it moved down the rows. It's a one-pick proposition since the bushes are stripped clean of pods of all sizes and of leaves as well.

The operation is fast, pods are undamaged, and the development of varieties which concentrate their set of pods provides hope for a real future for this machine. Level, sandy soil areas provided with irrigation facilities should be a natural for culture of this crop when the harvester becomes an available production tool for the grower.

Tests with a synthetic soil conditioner material, applied to plots two years ago, gave only fair results with vegetable crops at Madison this season. The soil, a heavy clay loam, was treated with 1,600 pounds of Krilium per acre in the spring of 1952. While results last season showed definite increases in yield and quality of snap beans, cabbage, potatoes, and carrots, this year's results have not been as startling. No differences in yield or earliness of cabbage were noted.

However, a definite increase in size and total yield of dry onions was found. This yield increase was due mainly to better plant stands in treated plots. Tomatoes in treated plots outyielded the untreated plots by a small but significant margin. Ripening of early fruits, however, was delayed on treated plots.

We feel, though, that synthetic soil conditioners have a place in vegetable growing on our problem soils. At present, however, it seems they are limited to small-scale garden use where the soil definitely has an extremely high clay content and a very low organic matter and sand content. The relatively high cost of these materials at present is the main limiting factor.—*John A. Schoenemann, Ext. Veg. Crops Spec., Univ. of Wis., Madison 6.*

FLORIDA—The Harold Rabin Company recently purchased the Keese Packing Company in Belle Glade, which will increase the volume of the Harold Rabin Company considerably.

M. E. Brown, Manny Cohen, Harold Kastner, E. A. McCabe, Ed. Marlowe, Harold Rabin, Russell Rabin, Robert H. Reely, A. L. Skinner, Frank Talbott, Charles Aderholdt, Clyde Simmons, Frank W. Studstill, Roy Vandegrift Jr., Eli

Walker, and M. O. "Buster" Williams were some of the vegetable producers, shippers, and buyers from Florida who attended the 59th annual International Apple Association convention recently held in Chicago.

Miles Anderson, administrative assistant in Florida Fruit and Vegetable Association's labor division, died recently following an illness of several weeks. In years of service Miles was one of FFVA's oldest employees. He was "Mr. Miles" to the thousands of Bahaman workers whom he recruited for the association.—*George M. Talbott, FFVA, Orlando.*

IDAHO—Announcement is made by Associated Seed Growers, Inc., of a reorganization in northwestern production personnel, which will now be headed by Cor Visers, with headquarters in Filer, Idaho, and the title of division manager, Mountain States Production Division. His supervision will extend over the dozen Asgrow warehouses and their adjacent territories

in the states of Idaho, Montana, Nebraska, Wyoming, eastern Washington, and Oregon.

A graduate of Cornell University in agricultural economics, Cor Visers joined Associated in 1936 as assistant manager of the home farm in Orange, Conn. He assumes supervision of production of the widespread Asgrow areas in the mountain states under Donald N. Clark of the head office in New Haven.

VIRGINIA—The Association of Virginia Potato and Vegetable Growers has asked the State of Virginia to appropriate funds for the purchase and development of a modern agricultural experiment station for truck crops to be located on the eastern shore of Virginia. The two eastern shore counties have 56 per cent of the total Virginia acreage devoted to potatoes and vegetables.—*W. F. McCaleb, Jr., Exec. Vice-Pres., Assoc. of Va. Potato & Veg. Growers, Norfolk.* (Continued on page 14)

A FARM PROGRAM FAIR TO ALL

DIRECTORS and officers of the Vegetable Growers Association of America took a firm stand on a national farm plan at a recent meeting in Mansfield, Ohio. What they had to say at the meeting is of vital interest to all vegetable growers. Speaking for the officials, Lee Towson, VGAA president, stated: "Vegetable Growers of America are increasingly concerned about the rapid return to the crutches of price supports for many agricultural commodities, and the resulting submission to government controls and regimentation by free American Agricultural Producers, Vegetable Growers believe in letting the economic chips fall where they may and attacking the problems with a sharp ax of reason.

"If certain basic crops are subsidized by high supports and acreage allotments, the released acreage will be planted to other crops, which will upset the economic balance of growers of those crops. (Released acreage is acreage forced out of production under supported crops by government crop allotments.) For instance, soy bean growers fear that released corn acreage might be planted to soy beans to cause a surplus of that crop. Livestock producers are deeply concerned about released acreage which might be planted to forage crops, because producers of all meat and dairy

products are in distress at the present time with surpluses and adverse publicity.

"Sugar beet growers fear released cotton acreage will cause an over-production of sugar beets. Growers of other grains are worried about the released wheat acreage. Growers of vegetables and potatoes are concerned about the released acreage in various sections from all acreage allotted crops.

"For instance, one per cent of the released wheat acreage alone, if planted to vegetables, would be disastrous to the vegetable industry which has never sought government supports. Already vegetables are selling at below parity rates or extremely low prices. Many of them are in surplus. The economics of the country for both the producer and the consumer would best be served by the basic economic laws of supply and demand. These concepts form the fundamental basis of the development of this country.

"It is obvious that the creeping paralysis of the addition of crop after crop to the price supported list merely shifts the crisis of over-production from crop to crop, and thus implies the end point of complete government regimentation, control and socialized agriculture.

"Vegetable Growers prefer to cling (Continued on page 17)

CALENDAR OF COMING MEETINGS & EXHIBITS

Oct. 4-10—Produce Prepackaging Association 3rd annual conference and exposition, Chase Hotel, St. Louis, Mo. Association headquarters: 1260 East Main St., Stamford, Conn.

Oct. 5-7—Texas Citrus and Vegetable Growers and Shippers convention, Shamrock Hotel, Houston, Texas. Association headquarters: 306 E. Jackson St., Harlingen, Texas.

Oct. 23-24—Annual Potato Festival, Klamath Basin, Ore., sponsored by Merrill Lions Club. Potato queen will be selected.

Nov. 10-12—Western Growers Association annual meeting, Hotel de Coronado, Coronado, Calif. Association headquarters: 606 South Hill, Los Angeles 14. C. B. Moore, Exec. Vice-Pres.

Nov. 12—Wisconsin Berry and Vegetable Growers Association annual meeting, Hotel Retlaw, Fond du Lac, Wis.—John A. Schoenemann, Univ. of Wis., Madison 6.

Nov. 30-Dec. 4—Vegetable Growers Association of America annual convention, Chase Hotel, St. Louis, Mo. Convention exhibits and arrangements: Dr. H. D. Brown, VGAA Sec'y, Ohio State University, Columbus 10, Ohio. Publicity: Max Chambers, Preston, Md.

Dec. 6-12—National Junior Vegetable Growers Assn. annual convention, Tulsa, Okla. Write Prof. Grant Snyder, Univ. of Mass., Amherst, for data.

Dec. 10-11—Iowa State Vegetable Growers' Association 40th annual convention, Hotel Hartford, Mason City, Iowa—C. L. Fitch, Sec'y-Treas., Ames.

Feb. 1-3, 1954—39th annual meeting Ohio Vegetable and Potato Growers Association, Commodore Perry Hotel, Toledo—E. C. Wittmeyer, Ohio State Univ., Columbus 10.

MICHIGAN—Michigan's vegetable industries, like many vegetable deals in the East and Midwest, started as a local gardening business supplying local markets. Michigan State College vegetable specialists have for years pointed to the possibilities of exporting to other parts of the country, particularly to southeastern states. During the last three years Michigan celery growers and shippers have improved their product for shipment and are reaching out to more distant markets with less concentration on Chicago.

In looking over some mid-August produce market reports it's interesting to note the extent to which Michigan vegetables are being offered to markets throughout the country. Some outlying cities include New York, New Orleans, St. Louis, Cleveland, Columbus, Baltimore, Cincinnati, Atlanta, Ga., Pittsburgh, Birmingham, Ala., and Chicago.—J. W. Rose, *Ext. Hort.*, East Lansing.

NEW JERSEY—New associate research specialist in vegetable crops at the College of Agriculture, Rutgers University, is Dr. J. Howard Ellison. A Texas A. & M. and Cornell University graduate, Dr. Ellison comes to Rutgers from the Riverhead, L.I., Vegetable Research Farm of the New York Agricultural Experiment Station, according to Dr. William H. Martin, dean of the college and director of the Agricultural Experiment Station.

CONNECTICUT—The Northeastern Vegetable Variety Trials were held this year in Connecticut, in mid-August. Research workers and seedmen were present from the USDA at Beltsville, Md., Michigan, and points in between for the two-day inspection tour.

At the Associated Seed Growers, Inc., at Orange, trial plantings of tomatoes, cucumbers (including pickles), and radishes were inspected. The trials at Associated are under the direction of Joe Steinke, who led the discussion.

George Skirm, plant breeder for F. H. Woodruff & Sons, supervised the discussion centering around the Woodruff trial plantings of tomatoes, peppers, etc., at Milford. Due to the exceptionally dry summer, snap beans and lima beans in the trial were not quite mature. George did have, however, a very excellent planting of some of his own strains of beans along with standard varieties for comparison.

The dinner program at Hotel Taft in New Haven included a talk by Dr. Edward Rubins of the University of Connecticut on "Chelates and Related Compounds" and a discussion on plant breeding problems led by Dr. Martin Odland of the Pennsylvania State College.

The group also visited the Mount Carmel

Farm of the Connecticut Agricultural Experiment Station where sweet corn, squash, and other plantings were inspected, and the Lee Farm of the University of Connecticut, near Storrs, where Dr. Byron Jones showed the visitors around the farm where onions, celery, cabbage, summer squash, melons, etc., are growing. Jones also explained a 10-year rotation experiment and his work on irrigation.

At the conclusion of the two-day tour some of those attending went on to inspect plantings at Kingston, R. I., Eastern States Farmers' Exchange, and the Waltham Field Station in Massachusetts.—E. C. Minnum, *Ext. Veg. Spec.*, Storrs, Conn.

CALIFORNIA—Dr. Richard L. Adams, agricultural economist at the University of California for 39 years, retired from his post on July 1 to head the Grower-Shipper Vegetable Association of central California which has a 25-acre experiment station at Salinas. At his new post, Dr. Adams will direct research in production, transportation, and marketing of vegetables.

While Fresno County is usually regarded as a big cotton, grape, fig empire, vegetable

growers also have their strong points. Last year's agricultural income for Fresno County totaled \$351,646,317, according to County Agricultural Commissioner Dixon, who states this is the fourth straight year his county has held the No. 1 rank for the United States.—F. Hal Higgins.

OHIO—Many northeastern Ohio vegetable and potato growers have visited the variety plots at Firestone Farms near Columbiana. Over 50 varieties and hybrids of sweet corn, 52 varieties of tomatoes, 56 lots and varieties of potatoes, and 19 snap bean varieties are planted in comparative plots for evaluation of crop characteristics and yield checks. The tomatoes will be in good condition until frost.—E. C. Wittmeyer, *Ext. Hort.*, Columbus.

NEW YORK—A new way of controlling damping-off in his cauliflower seedling flats has been discovered by William Hoag of Delaware County. He uses 17 pounds of finely ground limestone, one pound of calomel, and one teaspoonful of corrosive sublimate in powder form. These are mixed thoroughly.

Just before seedlings sprout through the ground in the flats, the mixture is sprinkled generously over the ground and plants do not damp-off.

This procedure is good also for use on cabbage, broccoli, and other crucifer seedlings, according to Charles Chupp, professor at the plant pathology department at Cornell University.—William B. Giddings, Sec'y, New York State Vegetable Growers Assn., Baldwinsville.

PENNSYLVANIA—Milton T. Lewis, professor of plant breeding at Pennsylvania State College, died recently. He was well known for his work in developing improved varieties of head lettuce, sweet corn, and snapdragons.

SOUTH CAROLINA—The South Carolina Fresh Fruit and Vegetable Association was recently organized by a group of Columbia produce men who hope to encourage co-operation and fair competition between growers, distributors, and dealers.



Occasional showers compelled unprepared visitors taking part in the two-day inspection tour of the Northeastern Vegetable Variety Trials recently held in Connecticut to resort to clean seed bags to ward off the rain. The group is shown above inspecting pickles. In front row from left is George Skirm, plant breeder for F. H. Woodruff & Sons, Inc., Milford; Joe Robson, Geneva, N.Y.; Joe Steinke, plant breeder for Associated Seed Growers, Inc., Orange, Conn., who lead the discussion; and Orson Robson (in white raincoat). On Orson's right, with bag on his head, is Dr. Des Dolan, University of Rhode Island, Kingston. Next to him is one of the "deans" of the American seed trade, Harm Drewes, Ferry-Morse Seed Company, Detroit. Hatless man with paper in hand is A. R. Junginger of the W. Atlee Burpee Co., Philadelphia.

AMERICAN VEGETABLE GROWER

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Seven objectives have been announced by the organization including encouragement of fair competition among growers, shippers, distributors, and dealers; correction of unfair practices as they occur; and encouragement of local and state commodity associations which constructively service the industry.

NEBRASKA—Sweet potatoes are a good crop for Nebraska. Experiment station tests have shown them to be easy to grow because they need little feeding, they withstand drought, they are quite free of diseases, and their vines crowd out weeds. Commercial planting of this vegetable is feasible in the sandy soils of eastern, central, and southern Nebraska, according to the Nebraska Experiment Station.

MARYLAND—Diversification of crops is one of the aims for Garrett County, and considerable experimentation with cool weather truck crops such as spinach, broccoli, cauliflower, and kale is under way,

1953 VGAA CONVENTION

The dates of the 45th annual convention of the Vegetable Growers Association of America are:

November 30 to December 4

The meeting place is:

Chase Hotel, St. Louis, Mo.

Top ranking speakers are scheduled to discuss subjects of particular interest and importance to vegetable growers, and the national vegetable queen will be selected. It is an opportune time, too, to "swap" experiences with growers from all sections of the country.

Make hotel reservations NOW.

says Charles Porter, marketing specialist at the University of Maryland.

One of the biggest problems in the spinach growing areas is weed control. Experiment station test plots have proved that excellent control of weeds in spinach is possible with one pound per acre of the chemical CIPC. However, tests on a commercial scale were not as encouraging. Good control of chickweed and henbit were achieved by Herman Schmidt at Bradshaw, but gegnor (garden weed) invaded the crop. It would seem that combinations of herbicides will have to be tried for real success.

The herbicides are most effective on damp or wet ground, or if it rains shortly after application, it was found.

MONTANA—Circular 199, entitled "Vegetable Varieties for Montana Gardens" can be obtained by writing to the Montana State College, Agricultural Experiment Station, Bozeman, Mont. This illustrated circular reports the results of vegetable variety trials at the Montana station. Only vegetables considered especially suitable for Montana gardens are described.

ONTARIO—The majority of sweet corn growers in Canada's largest producing area have entered into a single organization, the Norfolk Sweet Corn Growers Association with headquarters at Port Dover. The purpose of the organization is to enforce quality control under strict government inspection and to help maintain quality by providing the most modern refrigeration facilities in the industry. A hydrocooler for rapid chilling and temporary storage facilities maintained at a 34° temperature are included in these facilities.

OCTOBER, 1953

CONTROLLING SOIL INSECTS

Oregon growers see results of many interesting experiments at field day

By HAROLD and LILLIE L. LARSEN

YOU stop bugs from eating the tops of vegetables by putting something in the ground at the bottom of the plants. What is more important, you also stop them from eating the roots themselves.

That is just one of the things several hundred curious spectators observed during vegetable day held recently at the East Farm of Oregon State College, Corvallis, Ore.

One of the big attractions was the plots of potatoes and turnips where soil experiments dated back five years. These residual soil insecticide plots, measuring 50 by 20 feet each, were first established in 1949 and had received only one treatment with wettable powders at the rate of 10 pounds actual material per acre. The identity of the materials used had been maintained by careful rotary tillage within the plot boundaries, Dr. H. E. Morrison, in charge of this research work, told the visitors.

The thorough mixture of the materials in the soil to a depth of six to eight inches was considered an important feature in the experiment, he added. This also affects the longevity of the insecticide in the soil.

Control Varies Yearly

One thing which interested the visitors was the way in which some of the insecticides gave good control the first year but tapered off as the years went on, while other insecticides improved with the years.

For instance, DDT gave 77 per cent control of the tuber flea on potatoes the first year it was placed in the soil, but only 14 per cent last year, three years later. On the other hand, heptachlor gave no control the first two years, but in 1951 gave 99 per cent control, and perfect control last year. Aldrin gave 99 per cent control through the four years.

Experiments proved, according to Dr. Morrison, that aldrin was one of the most effective treatments, is easy to apply, and requires no exact timing. The cost of soil treatment with aldrin is no greater than that of previously recommended measures for the tuber flea beetle.

Aldrin also gives good control for wireworm and fair control for the cabbage maggot. However, dieldrin and heptachlor indicated a better control for the maggot. The latter showed no control the first two

years, but a 96 per cent control the fourth year. Dieldrin showed 67 per cent control the first year and 100 per cent control the fourth year.

Interest, too, was high in the bean divisions, with disease resistance, high yielding ability, and superior quality studied in the various experimental plots.

Also of special interest to processors and growers from Washington and Oregon attending, was the Blue Lake Bean Germination research work, explained by W. A.



Dr. A. W. Marsh is shown demonstrating moisture-registering meter. Gypsum blocks which he holds in his left hand are placed in ground at six-inch intervals to a depth of 42 inches. Moisture levels are recorded in meter held in his right hand.

Frazier of the college horticulture department. Differential behavior of the strains of the 28 replicates in the experiments was very consistent.

Attracting attention also was the measuring of moisture levels by means of gypsum electrical resistance blocks. Dr. A. W. Marsh, assistant professor of science, demonstrated how these blocks worked. A set of blocks, as he demonstrated them, consisted of seven individual blocks installed in the ground at a single location in vertical arrangement from six to 42 inches depth by six-inch intervals. Irrigations were ordered when average block readings within a moisture level reach a selected value. Readings in the experimental plots were taken every three days, the scientist said, and were very accurate. THE END

Books for Your Home Library

DISEASES OF VEGETABLE CROPS

by John C. Walker. The book thoroughly covers the diseases of such vegetables as asparagus, beans, celery, onions, etc. Each disease is discussed in regard to symptoms, cycle of development, and methods of control. It contains 629 pages and is well illustrated.....\$7.50

VEGETABLE CROPS

by Homer C. Thompson. An up-to-date book which covers such subjects as plant nutrition, weed control, nutritional value of vegetables, recent advances in handling and marketing vegetables, cultivation, irrigation and storage. The book contains 611 pages and many illustrations.....\$6.75

THE TOMATO

by Paul Work. Here is a practical treatise on the tomato which is for the amateur as well as the large commercial grower. It includes discussions on characteristics; methods of planting; fertilization; cultivation, points about harvesting, packing, storing and marketing; as well as insects and diseases which attack the tomato. This illustrated book contains 136 pages.....\$2.50

USING COMMERCIAL FERTILIZER

by McVickar. Here is a book which gives information on what fertilizers should be used and how they should be used for most efficient production.....\$3.00

GARDEN SOILS

by Arthur B. Beaumont. This book is written especially for the home gardener. The author has presented soil and plant science in simple language. A glossary of scientific terms can be found at the end of the book for the benefit of those unfamiliar with them. Illustrated, the book contains 280 pages.....\$4.00

AMERICAN TOMATO YEAR-BOOK

edited by John W. Carncross. The new 1953 edition contains much information which is of interest to the tomato grower, dealer, and shipper—all those who are vitally interested in the tomato industry. It contains an up-to-date list of recent references to tomato culture and diseases and pests and their control plus helpful information on prepackaging, use of hormones, and grade requirements for canning and processing. Profusely illustrated, the book contains 40 pages.....\$2.00

Books sent postpaid on receipt of check or money order.

AMERICAN VEGETABLE GROWER

Reader Service Department

Willoughby, Ohio

TRACE ELEMENTS

(Continued from page 7)

decreases as the pH of the soil increases above 6.5. Both organic and mineral soils are affected alike and virtually all crops are subject to manganese deficiency.

The pattern of manganese deficiency symptoms in plants is fairly constant for most crops. The deficiency produces a yellow chlorosis in the interveinal areas of the younger leaves. These leaves present a mottled appearance and the leaf veins remain a normal green color until the deficiency becomes extreme. If the deficiency persists, the chlorotic areas dry up and eventually fall out, giving the leaf the appearance of having been attacked by a chewing insect. Spinach is most frequently affected by manganese deficiency.

There are two effective methods for correcting manganese deficiency. Manganese sulfate may be incorporated with the fertilizer in amounts sufficient to provide 50 pounds of the manganese salt to the acre. The second method is to apply a foliar spray, containing two pounds of manganese sulfate in 100 gallons of water, directly to the deficient crop. The use of lime should be discontinued on manganese-deficient soils until the pH has dropped to 6.0. It is sometimes desirable to apply sulfur at the rates of 200 to 400 pounds to the acre to hasten the reduction in pH.

Copper Deficiency

Copper deficiency in vegetable crops appears to be restricted to soils

high in organic matter content. The use of copper sulfate has become standard practice in most areas where peat and muck soils are planted to vegetable crops. Virtually all crops are affected by copper deficiency when grown on these soils, especially during the first few years after the land is brought into cultivation.

The symptoms of copper deficiency vary from crop to crop. Affected plants usually are stunted in growth and have poor root development. Leaves lose their turgor and become flaccid. Lettuce leaves become chlorotic while leaves of deficient tomato plants turn a bluish-green color. Copper deficient onions produce abnormally thin scales of a pale yellow color.

Copper sulfate, applied at the rate of from 20 to 200 pounds to the acre depending upon locality and crop, is an effective material for correcting copper deficiency on organic soils. Usually an application of from 20 to 50 pounds of the material to the acre is sufficient. On some New York peat soils, however, onions have required up to 300 pounds of copper sulfate to the acre to produce a normal crop.

Molybdenum Deficiency

Molybdenum is the latest chemical element found to be essential to plant growth. To date only cauliflower, lettuce, and tomatoes have been reported to respond to applications of molybdenum salts. Cauliflower is most frequently affected. Molybdenum de-

FREQUENCY OF OCCURENCE OF TRACE ELEMENT DEFICIENCIES IN FIELD GROWN VEGETABLE CROPS

Crop	Boron	Copper ¹	Manganese ²	Molybdenum	Zinc
Asparagus	—	+	—	—	—
Beans, Lima	—	+	—	—	—
Beans, Snap	—	+	—	—	—
Beets	—	+	—	—	—
Broccoli	++	+	+	—	—
Cabbage	++	+	+	—	—
Carrots	+	+	+	—	—
Cauliflower	+	+	+	—	+
Celery	++	—	+	—	—
Corn, Sweet	++	+	+	+	—
Cucumbers	—	+	+	—	—
Eggplant	—	—	+	—	+
Kale	+	+	+	—	—
Lettuce	+	+	+	—	—
Onions	+	+	+	—	—
Peas	+	+	+	+	—
Peppers, Sweet	+	+	+	—	—
Potatoes	+	+	+	—	—
Pumpkin	—	+	+	—	—
Radish	—	—	+	—	—
Rutabaga	++	+	+	—	—
Spinach	++	+	+	—	—
Squash	+	+	++	—	—
Sweet Potato	+	+	+	—	—
Tomato	+	+	+	—	—
Turnips	++	+	+	+	—

— Unknown

+ Occasional

¹Usually occurs on organic soils only.

²Usually occurs on alkaline, or overlimed, soils only.

AMERICAN VEGETABLE GROWER

iciency produces a malformation of cauliflower leaves, a symptom which is commonly referred to as "Whip-tail."

Molybdenum deficiency is readily corrected by foliar application of sprays containing molybdenum salts. From one-half to one pound of ammonium or sodium molybdate should be applied per acre.

Zinc Deficiency

Zinc deficiency in cabbage and sweet corn has been reported only from Florida. In sweet corn the deficiency produces a bleaching of the younger leaves, a condition known as "white bud." Florida recommendations call for 10 pounds of zinc sulfate to the acre to correct the deficiency.

It is likely that trace element problems in vegetable production will increase in importance as our soils gradually become depleted of their limited supply of these nutrients. Eventually most vegetable soils will have to be supplied with one or more trace elements. However, once a deficiency is recognized, its correction is fairly simple and inexpensive.

New products are being investigated in the hope that materials can be found that will release a small but constant supply of trace elements to plant roots when the substance is incorporated into the soil. "Frit" is one such product that has been reported to be effective. New chelate compounds which maintain certain of the trace elements in a soluble form in the soil are currently being investigated and appear to offer great promise. THE END

FAIR FARM PROGRAM

(Continued from page 13)

to their concept of self-help in the tradition of free men. It would be as logical to support the corner druggist and to socialize him, too, as it would be to support another segment of the American economy—the farmer. It is evident that American agriculture cannot survive half free and half subsidized and Government supported.

"The alternatives we must choose between are the institutions of free men, acknowledging the costs in hardships of remaining free, and on the other hand, to fall to the status of puppets of the state; for the end-product of supports is controls spreading from crop to crop to the end of which, by the example of England, we can look forward only to a socialized agriculture wherein a farmer dare not plant a crop, nor change an acre without consent of a government bureaucrat.

"We therefore invite all other segments of American agriculture to examine earnestly, honestly and sincerely, these principles, and to join in this effort to maintain our traditional American freedoms."



W. H. Friend, associate county agent in the Lower Rio Grande Valley, shows how cantaloupes are planted on the sides of ridges to protect them from the wind.

Protecting Vegetables From The Wind

Texas growers use two unique planting methods to counteract the elements

By A. B. KENNERLY

FIGHTING the elements in the Lower Rio Grande Valley of Texas has taught vegetable growers some new tricks in growing their crops and in conserving their soils. When cantaloupe growers found their young plants leveled to the ground by constant winds, they developed the saw-tooth ridge method of planting which takes advantage of the winds.

"The cantaloupes are planted on the windward side of the ridges, putting them close to moisture," says W. H. Friend, associate county agent for the valley area. "When the plants begin to grow, the wind keeps vines on the ridges and out of the water when the crop is irrigated."

Some growers plant on both sides of the ridges and get increased yields of cantaloupes made possible by the increase in stand. The vines interlock

and give a matted row effect with better protection against the winds.

Tomato growers who became tired of constant winds whipping down their tomato plants are adopting methods recommended by Friend for protecting the crop. Two rows of sorghum are alternated with eight rows of tomatoes.

"This method of planting also prevents wind-scarring of fruit," explains Friend.

Friend points out that the sorghum rows serve as runways for equipment when tomato plants need spraying. This is especially helpful when the tomato plants become so large they would be damaged by tractor-drawn equipment. When the tomatoes are ready for harvesting, the growers may cut the feed for livestock, then use the clean rows for passageways while gathering the tomato crop.

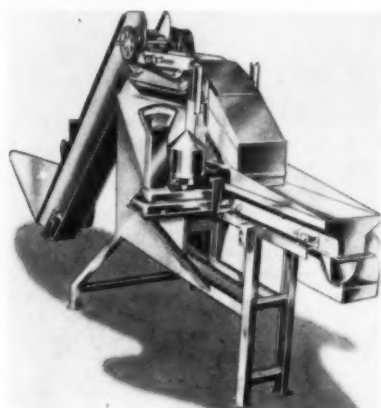


Two rows of sorghum give excellent protection to eight rows of tomatoes.

NEW FOR YOU

—to increase your profits

Weigh-Packer



All progressive vegetable growers are looking for more efficient machinery to package their crops. The Weigh-Packer offers a new approach to the problem of prepackaging, as it paces the operator instead of the operator pacing the machine. It can handle packages ranging from three to 15 pounds. Growers have talked to who own a Weigh-Packer have successfully used paper, mesh, and film bags. An analysis of several vegetable growers packaging operations shows that the machine reduced packaging costs 60 per cent. Here is a real machine designed to increase your profits. Why not write James F. Kelly, Aeroglide Corporation, 510 Glenwood Ave., Raleigh, N.C.?

It's New—It's Big



The Allis-Chalmers' new WD-45 tractor is powered with a new engine

which develops 20 per cent more horsepower. Just ask your Allis-Chalmers dealer to demonstrate it. One feature which took our eye was the new "snap" coupler system. The "snap" coupler is fully automatic and implements can be attached or detached in seconds. The grower does not have to make a pinpoint connection. Exact positioning of the tractor is unnecessary; and no bolts, pins, or cotter keys are needed. We urge all growers who are interested to write J. D. Harmison, Allis-Chalmers Mfg. Co., Tractor Div., 1126 S. 70th St., Milwaukee, Wis., for all facts.

Air-Cooled Power

The air-cooled engine has taken the back strain out of vegetable growing. This is why we should know all about motor construction and the proper application of air-cooled horsepower to our implements. A booklet every vegetable grower should have is available to our readers through the Wisconsin Motor Corp. This 72-page booklet, in color, can be yours by merely writing Phil Morton, Wisconsin Motor Corp., 1910 S. 53rd St., Milwaukee 46, Wis.

They're Handy



Many is the time a grower has had to stop work, start up the pickup, and run into town to buy a new belt for the garden tractor, grader, or other belt-driven equipment. This is a costly and aggravating delay. How much easier to have a selection of belts on hand. This can now be done with the Zipon Emergency V-Belt kit. This package of belts contains belting with a unique fastening tool so any size V or FHP belt can be made in a matter of minutes. If you'd like details, write Irving Patron, Brammer Corp., 684 Broadway, New York 12, N.Y., for full details.

Six Forward Speeds



—And costs only \$199.50. The new Simplicity garden tractor with reverse and a selection of six speeds forward provides the grower with a machine cheap in cost yet versatile in operation. The new Model F incorporates the famous Simplicity "quick hitch." Why not write Bob Smith, Simplicity Manufacturing Co., Port Washington, Wis., for full details?

Removes Onion Skins



The other day we visited a grower who is using the new Lobee onion brusher, and he was enthusiastic about the machine which can be adjusted to remove as many skins as the grower desires. The machine is compact, and an exhaust fan is used to remove the loose skins. The entire unit is driven by one motor. Write M. Maynard, Lobee Pump & Machinery Co., Gasport, N.Y.

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ROADSIDE SELLING

(Continued from page 9)

acre but is superb in quality. Customers may not be able to buy this exceptional quality in retail stores, so they will drive to your market for it. To keep abreast of new developments Harry Willey works closely with the horticulture department of Rutgers University at New Brunswick, N.J., and you will always find a few new varieties of vegetables being grown for test purposes on his farms.

How to establish prices on produce in a roadside market is a problem to consider. Each grower seems to have his own way and prices of a given quality will vary from market to market, even in the same locality. The Willeys gage prices according to supply and demand.

For example, today they may have a big picking of sweet corn and the price in the market is 50 cents a dozen. Sweet corn is very perishable, and maybe it didn't sell fast enough today to move the stock out. Then tomorrow they will sell the corn at 45 or maybe 40 cents a dozen and move the surplus out of the market. If demand is high for a particular vegetable it may be possible to raise the price somewhat.

The quality of the produce also helps determine the price. Suppose a particular planting of sweet corn has some worm damage, then those ears will not go at the top price but maybe about half. On the other hand, if a very fine planting comes on, those ears may bring a slight premium over the general price of good corn.

Prices Must Be Flexible

The Willeys feel that prices must be flexible in order to satisfy the most customers. They rarely will go above the retail price for a particular product, rather they will be slightly under it. A slight price advantage is an

important factor in getting repeat customers. Nearby competition is another factor that enters into pricing.

The physical facilities are of prime importance, too. The main market building at Willeys is roughly 50 by 50 feet with about a 10-foot display area across the entire front. The rear part of the building is used as a grading and packing room. Here produce is brought in from the fields, sorted by hand or sized mechanically, placed in appropriate containers, and placed in the front display area.

Beneath the grading room is a 4,000-bushel cold storage room which serves for either short-time holding of vegetables and berries, or for long holdings in the case of apples. It is a necessity, the Willeys feel, because there are times when a certain vegetable or fruit will reach its peak harvest period and the supply will be much greater than the demand. By

YOUR CHILD LABOR LAW

Do you hire children under 16 on your farm? If so, it would be wise for you to examine the federal labor law and your own state labor law.

The federal law permits vegetable growers to hire children under 16 only at times when they are not supposed to be in school, but a grower may employ his own children at any time. This federal law applies to all children, including those of migrant workers.

State laws may be more strict, and if so, they must be obeyed, so it behooves both large and small growers to check up on their local laws, not to hire children during school hours, to make sure of a youth's age, and to keep a record of his date of birth while employing him.

Remember that ignorance of the law is not an acceptable excuse.

—William S. Singley

putting that produce in cold storage they can sell fresh, prime quality over a period of several days and will not have to sell it at extremely low prices just to get rid of it. Spoilage is cut to a minimum, too.

Willeys Farm Market is open the year around even though there are times when they do not have much variety to offer folks. In view of this fact, it is almost impossible to grow all the items they must sell through the market. In the late winter months such storable products as potatoes, apples, onions, and others are about all they have to offer.

Even during the summer months they find it necessary to buy produce direct from other growers in order to have a supply for customers. For a few vegetables, as snap beans, they depend entirely upon growers who make a specialty of growing them. They sell all the produce they grow on their 230 acres through the market, but they can't grow all they sell.

Between 90 and 100 acres are devoted to fruits and the remainder to a wide variety of vegetables. Sweet corn takes about 20 acres, tomatoes 12, asparagus six, rhubarb three, sweet potatoes three, and then various acreages of peppers, eggplant, squash, muskmelons, and lima beans.

Variety of Skills Needed

To produce such a variety of vegetables and fruits takes quite a variety of skills. When the Willey's son, Kenneth, returned to the farm last year after spending time in the armed services and at Rutgers University, he was a most welcome partner in the business. With his educational background in both engineering and horticulture, Mother and Dad Willey feel they are now on the road to even more and better changes.

No selling program lasts long without fairness and honesty. The Willeys have treated customers honestly for 20 years, and their business has thrived as a result. THE END

The Improved

ARCO "OPEN RING" RUBBER BANDS

QUICKER to pick up—FASTER to apply—STURDIER all around.
SAVES time and money. IN ALL STANDARD SIZES.

Send your order now, ARCO () RUSH LBS. NEW OPEN RING BANDS
this handy way . . . () RUSH SAMPLES, PRICES

FIRM NAME _____

YOUR NAME _____

CITY _____

STATE _____

ALLIANCE RUBBER CO.

ALLIANCE, OHIO or HOT SPRINGS, ARK.



OPPORTUNITY ADS

Only 15c a Word—CASH WITH ORDER. Count each initial and whole number as one word. ADDRESS AMERICAN VEGETABLE GROWER, Willoughby, Ohio

AUTHORS SERVICE

BEGINNING WRITERS: GET \$1 to \$20 CHECKS daily writing simple children's stories, articles, poetry in your spare time. Experience unnecessary. Our instructions reveal how. Details FREE. W. HERMAN, 7016 Euclid, Cleveland 3, Ohio.

BUSINESS OPPORTUNITIES

SHINE SHOES WITHOUT "POLISH". NEW INVENTION. Lightning seller. Shoes gleam like mirror. Samples sent on trial. KRISTEE 179, Akron, Ohio.

GROW MUSHROOMS. CELLAR, SHED, SPARE, FULL time, year round. We pay \$3.50 lb. We paid Babbitt \$4,165.00 in few weeks. FREE BOOK. WASHINGTON MUSHROOM IND., Dept. 137, 2954 Admiral Way, Seattle, Wash.

CIDER MILLS—PRESSES

CIDER AND WINE PRESSES. HAND AND HYDRAULIC. new and rebuilt. Repairs and Supplies. Clarifier and Filters. Bottling equipment. Write for catalogue. W. G. RUNKLES' MACHINERY CO., 185 Oakland St., Trenton, New Jersey.

CIDER MILL OPERATORS: LET US SAVE MONEY on pressing cloth needs. N. C. JOHNSTON, Columbia City, Indiana.

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OVER 5,000 WESTERN APPLE BOXES. GOOD CONDITION. Hold 1/2 bu. Lot \$500.00.

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TWO THRIVING YOUNG ORCHARDS. 75 and 96 acres, apple, peach, cherry and pear trees. Modern equipment and cold storage on both places. C. Y. DeLONG, R. 1, Fleetwood, Pa.

INSULATED HOUSE, GAS WELL, 20 ACRES GRAPES, 1200 fruit trees. FOYE'S FRUIT FARM, North East, Pa.

APPLE AND PEACH ORCHARDS LOCATED IN MEIGS and Vinton Counties. Completely equipped—money makers—very reasonable. Other business interests. SAM FAILET, Athens, Ohio, Tel. 27347.

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by Donald E. H. Frear

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.....\$1.25

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Willoughby, Ohio

FOR SALE

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WAREHOUSE, POTATO GRADER, PLANTERS, SPRAYERS, DIGGERS, washers, hand trucks. Everything goes. Good irrigated country. Favorable conditions for Irish potatoes, onions, lettuce, sweet potatoes, vegetables. Good local markets and overnight trucking to principal markets. \$10,000 will handle the deal. Write O. STEINBERG, P. O. Box 242, Plainview, Texas.

MISCELLANEOUS

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WANTED: UNIMPROVED FARM CHEAP. HERBERT AYER, R-1, Newtown, Ohio.

HOW TO MAKE A LIVING IN THE COUNTRY

by Fred Tyler

Ninety-six pages of ideas for making a living in the country. The eight pages on roadside marketing are worth the price of the book.....\$1.00

Sent postpaid on receipt of \$1.00
AMERICAN VEGETABLE GROWER
Willoughby, Ohio

A GREENHOUSE

(Continued from page 12)

racks are loaded down each spring with wooden boxes holding a dozen flower plants to the box. The box and plants are sold direct to customers at the Spence roadside stand. Varieties include asters, zinnias, petunias, marigolds, and many others.

Flower growing may seem far removed from vegetable production but the Spence Farms find it an excellent way to start the help working early in the spring.

Cabbage, lettuce, tomato, and other early crop plants are started in the greenhouse, then switched to the heated hotbeds and moved out to some 800 sashes as soon as possible to make room for other seedlings. As soon as these early plants are out of the greenhouse, one end is sowed with celery for later transplanting. Then comes a full house of tomato plants that are soon moved into the fields.

Shortly after the spring plants are out of the way or moved to hotbeds and sashes, the greenhouse is set out with Waltham Forcing tomatoes.

This hothouse tomato crop lasts until the latter part of July or the middle of August when the outdoor crops come into the market. No time is wasted when the tomatoes need shade on a hot day. A sprayer is used to cover the entire greenhouse with whitening in five minutes.

The greenhouse is cleared out as soon as the outside crop of tomatoes hits the market. Except for holding vegetables, the next use of the greenhouse is for storing green tomatoes when frost comes. Last season 500 baskets of green tomatoes were stacked in the greenhouse to ripen for later sale to juice manufacturers. Now it's time for storage of Blue Hubbards.

Roadside Stand Is Major Outlet

At one time the 70 acres owned by these market growers was set out to large fields of produce. Although they still sell to the Boston markets, most of their plantings now are smaller and planned specifically for a continuous supply of fresh vegetables for their roadside stand.

At the roadside stand the wives of the Spence brothers, Jane and Elvira, and a sister, Mrs. Ruth Courage, take turns working two days each week.

What happens on the Spence Farms in the winter when the snow is deep? Why these growers are plowing out the yards and driveways of over 200 customers with snow plows mounted on two of their tractors. Robert and Albert, and their dad just don't know how to waste time!

THE END

AMERICAN VEGETABLE GROWER

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VEGETABLE CONSUMPTION

(Continued from page 11)

per person), frozen green lima beans (.70), snap beans (.52), spinach (.49), broccoli (.43), and sweet corn (.42) pound per person including both corn on the cob and cut corn.

Because the commercial freezing process, when properly done, quickly halts the enzymatic processes that cause quick decline in quality and flavor of fresh vegetables such as green peas and sweet corn; because of the added convenience to the housewife in removing pods and shucks; and because of the continuing promotion of retail-store and home-freezer cabinets, it is probable that frozen vegetables will hold the ground they have gained and go even farther.

Canned Consumption Up

Commercial canning of vegetables, of course, had a much earlier beginning than did commercial freezing and having reached a higher level may be on a more stable basis nearer a theoretical maximum. However, consumption of commercially canned vegetables has increased substantially in the past two decades. In 1935-39, civilian consumption averaged 28.8 pounds per person (net contents, canned weight basis). In 1940 this was nearly 34 pounds and in 1952 slightly over 41 pounds per person.

Canned tomato juice (including tomato-vegetable juice combinations) and canned green peas are now the leading items consumed, each at 5.1 pounds per person in 1952. Canned whole tomatoes, which in 1935-39 led the list at 5.7 pounds per person, have declined in favor to 4.1 pounds per person in 1952. Other leading items in 1952 were canned sweet corn (4.8 pounds per person), pickles (3.8, including pickles packed in bulk), and snap beans (3.4 pounds per person).

It seems unlikely that frozen vegetables will ever completely replace canned vegetables since canned vegetables have certain advantages such as economy, not requiring refrigeration, etc. For example, while consumption of fresh peas has declined and that of frozen peas has increased a great deal, consumption of canned peas has about held its own.

Consumption of canned peas was 4.5 pounds per person in 1935-39, 5.4 pounds in 1940, the same in 1950, and remained at about 5.1 pounds in 1952. Also in times of national emergency canning provides a sure means of conserving food and holding it beyond periods economically practical with frozen vegetables.

White or Irish potatoes were once

considered as a nearly indispensable staple item of the diet. Increasingly over the last two or three decades, however, consumers have been able to get a wider variety of fresh and frozen vegetables the year around, salads have become more popular, and foods containing starch have fallen in favor on the often false assumption that they are fattening. Consumption of potatoes averaged about 129 pounds per person (farm weight basis) in 1935-39, but by 1952 had fallen to slightly more than 100.

In very recent years there has been a rapid growth in commercial preparation of potato chips and the freezing of partly prepared potatoes for french-frying and other use by hotels and restaurants. These developments, plus promotion of a more sound point of view toward the true nutritional qualities of potatoes, seem to be the main hope of halting the downward trend in potato consumption.

Sweetpotatoes have been consumed mostly in the southern states in times past, largely as a home-grown food. However, commercial production has gained relatively in such states as

Louisiana, Texas, and New Jersey, and the importance of the crop as a non-commercial home grown food source has declined.

Total civilian consumption of sweetpotatoes averaged about 21 pounds per person in 1935-39, declined to 16.1 in 1940, and 12.3 in 1950, then fell precipitously to 7.2 in 1951 and about 6.8 in 1952. Part of the rapid decline in sweetpotatoes has been due to the attractiveness of possible alternative crops in the South in the last few years and the relatively high employment and wages and therefore lessened need for non-commercial home grown food in the South in these years.

Population Trend

Finally, with respect to all vegetables, whether fresh, canned, or frozen, the commercial grower needs to consider not only trends in consumption per person but also trends in total population. With a stable consumption per person our still growing population means an expanding market. Since 1935, when it was 126.9 million, our population increased to well over 150 million persons. Also, the decline in birth rate has not occurred to the degree anticipated. Hence further healthy growth can be expected.

THE END

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- ☐ Farm Journal & Farmer's Wife.....1 yr.
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- ☐ National Live Stock Producer.....2 yrs.
- ☐ Open Road.....6 mos.
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- ☐ Parents' Magazine.....6 mos.
- ☐ Poultry Tribune.....2 yrs.
- ☐ Screen Stories.....6 mos.
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SELECTIVE OFFER NO. 1

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- ☐ Country Gentleman.....1 yr.
- ☐ Everybody's Poultry Magazine.....1 yr.
- ☐ Farm Journal & Farmer's Wife.....1 yr.
- ☐ Household.....1 yr.
- ☐ Mother's Home Life.....2 yrs.
- ☐ National Live Stock Producer.....1 yr.
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☐ OR — AMERICAN VEGETABLE GROWER for 1 Yr. and any three magazines for.....\$3.00

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City.....State.....

Kind of crops grown.....Acreage.....

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Obtain High Crop Yields

THE plight of the potato growers faced with low prices and an uncertain market on top of a more than ample crop serves to re-emphasize the importance of striving for high yields as there is no more certain way to lower costs on per unit of whatever is being produced. Obtaining high yields means making vegetable farms more efficient and on this subject the Virginia Truck Crop Experiment Station had some good advice in a recent issue of their "Vegetable Growers News."

The wise use of limestone, fertilizer, cover crops, sub-soiling, and irrigation are suggested to obtain high yields. In addition "have soils tested for lime and fertilizer recommendations. Plant only adapted varieties. Make more efficient use of machinery and equipment to cut down expensive hand labor. Chemical weed control is becoming more important each year in reducing hand labor. Re-

arrange enterprises so as to use machinery and equipment for as many days as possible throughout the year in *productive* work. Use the land we now have more efficiently and do not buy more land at the prevailing high prices.

"Give thought to the possibility of working some livestock enterprise into the farm business to utilize some of our low quality produce we now discard in our grading operations. Improve the farm wood lot. Protect the wood lot from fire and it will grow into a profitable source of income. Retire debts that might become burdensome if prices fall too low for a long period of time. Join a national farm organization so as to be heard in national legislative matters."

This is sound advice. Adapting it to your own farm is another matter, and therein is the reason why some succeed where others fail.

Antibiotics—A New Horizon

THE WORD antibiotic is a rather new term which has sprung into widespread use since such compounds as penicillin and streptomycin were discovered. An older inaccurate definition of antibiotic is "destructive of life." A newer definition is a chemical compound obtained from lower plant cells such as bacteria yeast and molds which are antagonistic to forms of life which cause disease.

Some of the great advances in human medicine have been made through the use of these wonderful new compounds. Penicillin, as one example, has saved the lives and eased the suffering of countless thousands of people.

Now the good news comes that the antibiotics streptomycin and penicillin and others are of use in combating plant disease. Dr. W. J. Zaunmeyer, USDA scientist, made one of the first reports of an effective antibiotic used as a bactericide in connection with the control of halo blight, a virulent and important bacterial disease of vegetables. He found that a spray of streptomycin was much more effective than several mercury fungicides. In commercial bean fields which have been lightly infected with halo blight,

Dr. Zaunmeyer believes the disease could be successfully checked with one or two sprayings at very low concentrations. Some day, not too far away, it may be possible to protect beans with one spray at a cost of \$5 an acre.

In the meantime Wilson L. Smith, Jr., of the USDA has found that several antibiotics will extend the keeping life of packed spinach. When stored at room temperatures spinach and other leafy green vegetables are subject to the rapid decay of soft rot. Refrigeration merely delays the appearance, and once vegetables become warm it strikes fast. Dr. Smith sprayed spinach after packaging and found that streptomycin was most effective in reducing decay. The experiment is encouraging even though such use of antibiotics has not received the approval of the Food & Drug Administration for commercial use.

Streptomycin also has given great encouragement in the control of fire blight, a deadly disease of apples and pears. Robert Goodman at Missouri and Frank Winters at Ohio have found that in-bloom sprays give nearly perfect control. It is believed that

the antibiotic spray is absorbed into the plant stream and spread throughout the plant.

Another field being investigated for antibiotics is seed treatment. Tests have almost doubled the seed treatment of corn with terramycin applied in water at only five parts per million.

The possibilities are enormous, but it will take years of patient research before we learn all there is to know about streptomycin, penicillin, terramycin, and such others as actidione, helixin, toximycin, and antimycin.

Solving of one problem may begot another but there is great hope for the future with antibiotics, no longer destructive of life but now saving of life and food.

The Value of Research

THE GREAT value of our agricultural colleges, experiment stations and the United States Department of Agriculture is seldom fully realized. If it were possible to place a money value upon their contributions, each institution would be worth many thousands of dollars to us and to our industry.

Tax money and contributions used by our research institutions should be considered as investments, rather than just expenses. There is a definite and high rate of interest returned on each dollar invested. Whenever our legislators are considering appropriations to support our state and federal experiment stations, we ought to be quick to point this fact out to them. There are multitudes of examples.

Consider for a moment what the development of a single variety of a vegetable by one of our plant breeders can mean. Can we calculate the value of the Rutgers tomato variety to growers, processors, and consumers? Increased yields of this variety over others has alone brought many hundreds of thousands of dollars into growers' pockets, all from the investment of a few thousand dollars in Prof. L. G. Schermerhorn's breeding program.

We can step up the value of research to agriculture, and our vegetable industry especially, by being always on the alert to assist in all the ways we can the passage of legislation granting appropriations to our experiment stations.

Breeding to Fight Disease

DISEASES take huge tolls of vegetable crops, and every year millions of new plants are grown in an effort to breed varieties with natural resistance. Some of the first work in breeding disease resistant varieties was done at the University of Wisconsin, and recently plant pathologist J. C. Walker told of progress being made in the Badger state.

He explained that early in the 1900's the yellow disease was devastating the best cabbage lands of Racine and Kenosha counties. Occasional resistant plants which survived in sick fields were developed into disease-free cabbage plants which produced a full crop where old varieties failed completely. The first resistant cabbage variety, Wisconsin Hollander, was introduced in 1916 and today, 37 years later, it is widely used in Wisconsin and in many other states.

Resistance to two other cabbage diseases—mosaic and clubroot—is now being added to yellows resistance in cabbage. Canning pea varieties resistant to both wilt and near-wilt are in the making. The first of these has just been released under the name New Era.

Pink Root Increasing

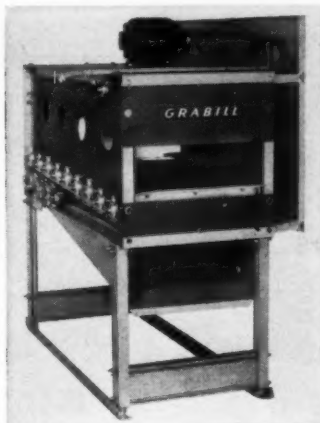
Pink root, a serious disease of onion, is increasing in importance in the midwest. It has long been destructive in Texas. Tens of thousands of onion seedlings are tested annually to find the most resistant ones to be used for further breeding. This program carried out in co-operation with the USDA and the Texas Experiment Station is about to produce pink root resistant types for Texas, and it is hoped those suitable for Wisconsin are not too far away.

Spot rot (or scab) and mosaic are the chief hazards of the cucumber pickle crop in Wisconsin. A breeding program directed toward development of resistant varieties has been under way for seven years. By using short cut tests and producing three generations of cucumbers per year a spot rot resistant variety known as Wisconsin SR 6 was released in 1951 and is being used widely in the state for the 1953 crop. Further breeding has led to the combination of mosaic resistance with spot rot resistance. The new variety Wisconsin SMR 12 was released for large scale trial in 1953 and, if satisfactory, seed will probably be generally available for the 1955 crop.

THE END

New John BEAN Cleaning-Waxing LINE features more models, lower costs

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WASHER-ABSORBER. Units available with hair or rubber brushes. You can use them on tender produce or on potatoes. They work well in lines from 12" to 24" and come in models with from 100 to 175 bushels per hour capacity.



WAXER. Economical to buy and operate, this new waxer adds an exceptionally fine appearance to apples, peppers, cucumbers, tomatoes, and potatoes. Capacity 100 to 170 bushels per hour.



CUB BRUSHER. This series was designed specifically for the low-cost field. Used with the popular "Cub" grader, it enables the smaller grower to efficiently and economically clean his fruit and vegetables.



TWO-WAY CLEANER. Equipped with horsehair or rubber brushes, designed to clean from 60 to 420 bushels per hour. The soft cloth buffers can clean tender vegetables and fruit, or they can handle onions and potatoes.



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DIVISION OF FOOD MACHINERY AND CHEMICAL CORPORATION

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Shown above is the Asgrow Pacific Coast Station at Milpitas, California with over 200 acres in cultivation, under Dr. Allen Trotter.

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